

**FIGURE 1A**

**MSP Unmethylated 223 BP**

GT TA GCTTATCT TTGTTGTATG

Forward UM 22 BP MT 56

T AAAATCCACC AACACAATCA

Reverse UM 21 BP MT 56

Cap Methylated 273Rr

5'ACGGTACGCTCGA100

**F M 19 BP MT 58**

CGA AATATCTACG CTAAACG

R M 20 BP MT 56

**FIGURE 1B**

**Twist Promoter:** Accn No. AC003986

Promoter Region analyzed: nts -51145 TO -51750

1 cattggactg ggttttccttc cacCGaagag tgaactttctg cctcttttCGa gcaccttcCG  
61 aggCGtagtc ctttgatgt tggggagCGt cagactgggt CGttgtagag gggaaggag  
121 ggccagaag ggCGagagag cagggCGgga CGcaaatcct cagccccCGC GCGCGccacC  
181 Gctttcagaa aCGccaggac ctCGggctg ggcCGCGCGG gtttgccctt tggaaactcaa  
241 gggttCGtct acctgacct tgggtggctc CGCGgttgac acttttcttg gcatgcccc  
301 ccaccccCGCG ccacaccacc cccccagccc cagcaatcca aatCGgcccc aCGgacctag  
361 agggctcttg ggCGagatga gacatcacc actgtgtaga agctgttgcc attgctgctg  
421 tcacagcca CGgagatggg gggcaggag agtctcttc GacCGcttc  
481 tgggtgCGC taggttCGg gggCGctgccc CGcaCGctcC GCGgggaag gaaatCGccc  
541 CGCGccCGC GaggaaaggC GacGGggagg gaagggggag ggCGgctagg aggCGgggtg  
601 aggggCGGc CGCGgagc CGCGctt tgaatgggtt gggagggaCGa attgttagac  
661 ccCGaggaag ggagtgga CGggggagg ggactggaaa GCGgaaactt tcctataaaa  
721 cttCGaaaaag tcctctctc tcaCGtcagg ccaatgacac tgctgcccc aaactttCG  
781 cctgcaCGga ggtataagag cctccaagtc tgcagctctC Gcccacttc cagacacctC  
841 gCGggctctg cagcacCGgc acCGtttcca ggaggcctgg CGgggtgtgC GtccagcCGt  
901 tgggCGcttt ctttttggga cctCGgggcc atccacacCG tccccctccc ctccCGcctc  
961 cctcccCGcc tccccCGCGC GcctctcccCG CGgaggtccc tccCGtcCGt cctcctgctc  
1021 tctctcCGC GggcCGcatC GccCGggcCG GCGCGCGC Ggggggaagc tggCGggctg  
1081 aggCGccccCG ctcttctct ctgccccCGgg cCGCGaggc caCGCGtCGc CGctCGagag  
1141 atgcagg aCGtgtccag ctCGccagtc tCGCGgCG aCGacagcct gagcaacagc  
1201 gaggaagagc cagacCGgca gcagCGcCG gcgCGcaagC GCGggggaCG caagCGgCGC  
1261 aCGagcaggC GcaCGgCGgg CGCGgCGCG GggccCGCG gagCGgtgg gggCGtCGga  
1321 ggCGgCGaCG agcCGggcag ccCGgcccag ggcaagCGCG gcaagaagtc tCGgggtgt  
1381 ggCGgCGgCG GCGgCGCGgg CGgCGgCGG Ggcagcagca CGGCGgCGg gagtCGcag  
1441 tcttaCGagg agctgcagac CagCGggtc atggccaaCG tgCGggagCG ccagCGcacc  
1501 cagtCGctga aCGaggCGtt CGCGCGctg CGgaagatca tccccCGct gcctCGgac

**FIGURE 2A**

1561 aagctgagca agattcagac cctcaagctg gCGgccaggt acatCGactt cctctaccag  
1621 gtcctccaga gCGaCGagct ggactccaag atggcaagct gcagctatgt ggctcaCGag  
1681 CGgctcagct aCGccttctC Ggtctggagg atggagggg cctgggtccat gtcCGCGtcc  
1741 cacCGcagg CGgagcccc caccocctca gcagggccCGg agaccTagg aaggaccCGCG

FIGURE 2B

Unmethylated 193 BP

tt TGGatggggTgtttatTGT FUM (3) 21 BP AT 58

cctaaccCAaaCAaccAacc RUM (3) 20 BP AT 60

Methylated 200 BP

ttCGgatgggTgtttatC FM (5) 20 BP AT 58

aaCCCAaTcttaccCGaaCC RM (4) 19 BP AT 58

FIGURE 2C

# **RAR beta promoter, MSP primers** ACCN NO. AF157483

Promoter region analyzed: nt -196 to nt -357

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1  gtgacagaag tagtaggaag tgagctgttc agaggcagga gggctctattc ttgccaaag
61  gggggaccag aattccccc atgagctgtt tgaggaatgg gatgcccata ccccaacc
121  cccgaagagg gtttgtctgg gcaccgctcg gtaggatcc ggaaccgatt cgggaaggctt
181  ttgcaagca ttacttggg aggagaactt gggatctttc tgggaacccc cccgcccagc
241  tggatggcc gagcaagcct ggaatatgca attgaaacac agagcaccag ctctgaggaa
301  ctccgtccca gcccccatc tccattcct cccctcgag tgtacaaacc ctgcttcgctc
361  tgccaggaca aatcatcagg gtaccactat ggggtcagcg cctgtgaggg atgtaagggc
421  tttttccgca gaagtattca gaagaatc attacactt gtcaccgaga taagaactgt
481  gttattaata aagtcaccag gaatcgatgc caatactgtc gactccagaa gtgctttgaa
541  gtgggaatgt ccaagaatc tgtcaggaat gacaggaaac agaaaaagaa ggagacttcg
601  aagcaagaat gcacagagag ctatgaaatg acagctgagt tggacgatct cacagagaag
661  atccgaaaaa ctcaccagga aactttccct tcactctgcc agctgggtaa atacaccacg
721  aattccagtg ctgaccatcg agtcgactg gacctgggcc tctgggacaa attcagtgaa
781  ctggccacca agtgcattat taagatcgct gagtttgcta aactctgcc tggtttcact
841  ggcttgacca tccagagaca aattaccctg ctgaaggccg cctgcctgga catcctgatt
901  cttagaattt gcaccaggta taccaccagaa caagacacca tgactttctc agaCGgcctt
961  accctaaatc Gaactcagat gcacaatgct ggatttggtc ctctgactga ccttgtgttc
1021  acctttgcca accagctcct gcctttggaa atggatgaca cagaaacagg ccttctcagt
1081  gccatctgct taatctgtgg agaccgcccag gaccttgagg aacCGacaaa agtagataag
1141  ctacaagaac cattgctgga agcactaaaa atttatatca gaaaaagaCG acccagcaag
1201  cctcacatgt ttccaaagat cttaaatgaa atcacagatc tccgtagcat cagtgtctaaa
1261  ggtgcagagc Gtgtaattac cttgaaaatg gaaattcctg gatcaatgcc acctctcatt
1321  caagaaatgc tggagaattc tgaaggacat gaaccttga cccaagtctc aagtgggaac
1381  acagcagagc acagtcctag catctcacc agctcagtg aaacacagtg ggtcagtcag
1441  tcaccactCG tgcaataaga ca

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FIGURE 3A

**Unmethylated 163 BP**

ggattggg gatgttgaga aTGT FUM 21 BP AT 60

CAaccatccc accCAaaCAa RUM 21 BP AT 60

**Methylated 142 BP**

caaccggcgc ttcgact FM(2) 19 BP AT 60

gaccatccga accGaaCG RM(2) 19 BP AT 58

**FIGURE 3B**

Homo sapiens serine protease-like protease (nes1) mRNA, complete cds  
AF024605

ACCESSION

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1 accagcggca gaccacaggc agggcagagg cacgtctggg tccctccct ccttcctatc
61 ggcgactccc agatcctggc catgagagct ccgcacctcc acctctccgc cgcctctggc
121 gcccgggctc tggcgaagct gctgccgctg ctgatggcgc aactctgggc cgcagaggcg
181 gcgctgctcc ccaaaaacga cacgcgcttg gacccccgaag cctatggcgc cccgtgcgcg
241 cgcggctcgc agccctggca ggtctcgctc ttcaacggcc tctcgttcca ctgcgcgggt
301 gtcctgggtg accagagttg ggtgctgacg gccgcgcact gcggaacaaa gccactgtgg
361 gctcgagtag gggatgatca cctgctgctt cttcaggggc agcagctccg ccggacgact
421 cgctctgttg tccatcccaa gtaccaccag ggctcaggcc ccctcctgcc aaggcgaacg
481 gatgagcacg atctcatgtt gctaaagctg gccaggcccc tagtgccggg gccccgcgtc
541 cgggccctgc agcttcccta ccgctgtgct cagcccggag accagtgccg ggttgctggc
601 tggggcacca cggccgcccg gagagtgaag tacaacaaag gcctgacctg ctccagcact
661 actatcctga gccctaaaga gtgtgaggtc ttctacctg gcgtggtcac caacaacatg
721 atatgtgtg gactggaccg gggccaggac ctttgccaga gtgactctgg agggccctg
781 gtctgtgacg agacctcca aggcctctc tcgtgggggtg ttaccctctg tggctctgcc
841 cagcatccag ctgtctacac ccagatctgc aaatacatgt cctggatcaa taaagtcata
901 cgctccaaat gatccagatg ctacgctcca gctgatccag atgttatgct cctgctgata
961 cagatgcccc gaggtcccat cgtccatcct cttcctcccc agtcggctga actctcccc
1021 tgtctgcact gttcaaacct ctgccgccct ccacacctct aaacatctcc cctctcacct
1081 cattccccca cctatcccca ttctctgcct gtactgaagc tgaatgcag gaagtgggtg
1141 caaaggttta ttccagagaa gccagggaagc cggtcatac ccagcctctg agagcagtta
1201 ctgggggtcac ccaacctgac ttctctgcc actccccgt gtgtgacttt gggcaagcca
1261 agtgcctct ctgaacctca gtttctctcat ctgcaaaatg ggaacaatga cgtgcctacc
1321 tcttagacat gttgtgagga gactatgata taacatgtgt atgtaaatct tcatgtgatt
1381 gtcatgtaag gcttaacaca gtgggtgggt agttctgact aaaggttacc tgtgtcgtg
1441 aaaaaaaaaa aaaa

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FIGURE 4A

Case	Age	Sex	Duration	Onset	Course	Outcome
1	20	M	10 years	1970	Progressive	Death
2	25	F	5 years	1975	Stable	Alive
3	30	M	15 years	1960	Progressive	Death
4	35	F	10 years	1970	Stable	Alive
5	40	M	20 years	1950	Progressive	Death
6	45	F	15 years	1965	Stable	Alive
7	50	M	25 years	1945	Progressive	Death
8	55	F	20 years	1955	Stable	Alive
9	60	M	30 years	1930	Progressive	Death
10	65	F	25 years	1940	Stable	Alive
11	70	M	35 years	1935	Progressive	Death
12	75	F	30 years	1945	Stable	Alive
13	80	M	40 years	1940	Progressive	Death
14	85	F	35 years	1950	Stable	Alive
15	90	M	45 years	1945	Progressive	Death
16	95	F	40 years	1955	Stable	Alive
17	100	M	50 years	1950	Progressive	Death
18	105	F	45 years	1960	Stable	Alive
19	110	M	55 years	1955	Progressive	Death
20	115	F	50 years	1965	Stable	Alive

[illegible]

**FIGURE 4B**

## Unmethylated 128 BP

1 **TTG**T agagagc**T** GgTgTtggttt  
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**CACACCAAT** **aaaaCAaaaa** **acCA** Nes1 RUM 22 BP AT 56

Methylated 137 BP

CCGaa atttatttccg tttd

5' TattttcCGGaa aacCGGGaa Nes1 RM 20 BP AT 58

**FIGURE 4C**

HOX A5 Promoter 3' to 5'

AC004080

16321 accaagagag actgggagag ggCGgcagag aagagagggg ggacCGagag cCGCGtcccc  
 16381 gCGgtCGCGt ggattagaa aaaggctggc ttaccatga ctatgtgca gcttgCGcat  
 16441 ccaggggtag atctggggtt gggCGggCGg CGCGgggtcC GgctCGctct gCGcactCGc  
 16501 ctgctCGctg ctggcagggg CGtcctcctC GgctcCGaC GcCGtgcaa cccctctct  
 16561 gctgctgatg tgggtgctgc CGCGtCGgc CGaggCGcCG ctggagtgc ttagggagtt  
 16621 ttccCGcCG tgggtgctgt CGctgcCGgg CGagggggc aCGCGgagc agggcagCGg  
 16681 atCGggctga ggagagtCG tggacGTggc CGgctggctg tacctgggt cCGCGggCGc  
 16741 CGCGctggCG ctggcagCGt agctgCGggc GCGctctcCG gagccaaagt ggcCGgagcc  
 16801 CGagCGgcCG aCGctgagat ccctgccatt gtagcCGtag CCGtacctgc CGgagtgcac  
 16861 gctCGcCGag tccctgaatt gctCGctcaC Ggaactatga tctccataat tatgcaactg  
 16921 gtagtcCGgg ccatttggat agCGacCGca aaatgagttt acaaaataag agctCGttg  
 16981 ttttttgata tgtgtgcttg attgtggct CGCGgtCGt ttgtgCGtcta tagcacctt  
 17041 gcacaattta tgatgaatta tggaaatgac tgggacatgt acttggttcc ctcttaCGta  
 17101 ggcaccacaa tatggggtac GacttCGaat caCGtgctt ttgtgtccag tCGtaaatcc  
 17161 tgcctgatga cctctagagg taaactCGtg cactaatagg ggagttgggt ggaggCGagg  
 17221 ggggtggCGC GCGCGcccgG ggcCGgtgcc CGCGccagt tgcCGCGt cagcCGgact  
 17281 CGagCGccac CGctggagg cagggtcat CGccagctt cGacCGggg gctgcaaggg  
 17341 CGgggtCGa attgaggta cagccatta tggcaaaatt attgcatttc cctCGcagtt  
 17401 ccattaggat gtaccaattg ttaggcCGtc agctgcCGat CGCGCGccCG gCGaggatgc  
 17461 agaggattgg

FIGURE 5A



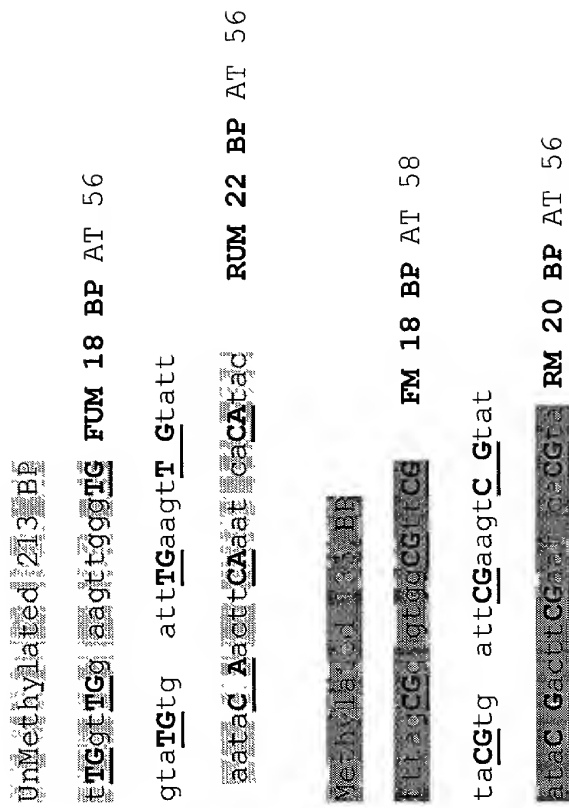


FIGURE 5C



*Homo sapiens* 14-3-3 sigma protein promoter and gene, complete cds.  
 ACCESSION No. AF029081

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1  ggatcccagc ctgccctcc acttctctcc caagccaggt cccggcatgg gtgggttatg
61  ctcatgctgg caatactga aacgggttta ttaatgctgg gtattttgca caattttata
121  gacctctttt ctacatagtc ttttttaaat ggaaggagaa aatgtcagcc acattactgt
181  ctgtgtagtg ccaggtgaag gttatcaga agcgtggtg gttttaataa gtttattcca
241  agagaccttc tggctggaat gagtgaagt gtgtgtgcat gtgtgtgtgt gttcatgtgt
301  gccctgtatg aatgtggctg gctcccatg cccctgggct gccccctgcc ccatccccct
361  tgagtatcag agcactctg agccaagggg acagggggca cgtgcactgg tcacgagaaa
421  accctgggct ccactgggg ctccagcccag cctcctatct ttccttcttc tatggacttc
481  agacagccag tgtctgggga ctctgccact ctacccccag cctaccacc cagccccag
541  gtgaggcttc cagctgggac ctgccagac agcctgagcc tgggcgtggt ggttgggggtg
601  atggctctgg ggagcggctg ccatectaca agccacacc cctcctctga gctctgaata
661  tgggacccag tgcaggagc tggaagacaa ggtgtttctg ccaaacggga cctccatcca
721  gagaaaagga agaagtgca ggttgggcca agaggcaagt gaaggttggc ctgagtctgg
781  gccggaaaact cagaggatgt ttctcctctg ctgggagctg tagtttctta tcaaaataga
841  tattgttcca ccatacccc ccttggccct tcaagtgggc tgaagccttg gaaagtgaca
901  taggaagtec ccagatcttg ccttctcac tccagaggct agtggtcaca gacagctggg
961  aatggcagcc acagagggtc cctctggaga aacagcttca cccagcctc agggccctgg
1021  gcatactgc agtggccctg ggaggtgagg aagaagctgg ctagaggagg gggctcccac
1081  ctacctttta ttaagccag tattctttgt tctgcttgtt aataaaactt cagtttataa
1141  gagtgtgctt gctttggtt ggtttttgtt tgcctttcct ttgctgaggc cccaactggg
1201  agccctctgt tctttcagac aaatttggtt ctttcctggg gagactgtga gaaggcaggc
1261  agccagtgga tctggctaca tttccctca cctggctgga gctctgtccg ctggaggaaag
1321  agcagagagg gctgcggctg agcccccatg ggcacgtgaa aagaggccat cctgtcccc
1381  ctttgtcccc tccaccttc cctgcctcag gggcttgagg accccaatt cttcttccct
1441  actgccttc cactccgac cccaatgagt gccagctaa gaaaatgttt gagacagtag
1501  attccagttt gagagccgga gcttccctgg ctaccacct caacctgggc accaggggcc
1561  agccagacaa ctataaacac tggccacct ctctggtatc tccctcagga ggacacctgt

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**FIGURE 6A**

1621 caggattttg ccatttcctg cacagcctga ggggagctaa caggcctctt tgcagagggg  
1681 tagctggtaa gaccgtttct tccctgtcgg ccagcactgc ccgctccctt ccacacacca  
1741 tctcatcctc atcgcatgcc tgcaccaacc catggagccc gtccatctgt ctggtgtgtg  
1801 gtgcggtgtg tgtgctggtg gtggtagggg ctccagggac tccccgctaa gcagaaggat  
1861 cgggatatag ggcaaggcta aaagcccagc ccatttgtg actgaggaag tacgttcgcg  
1921 cagagcagct ctccagctgg aagaggaggt ggagggtgag gctggggaga ggatggcgaa  
1981 cctgccctga ggtgcttggg tctgtgctgg tggggtcctg gtatgcagg gccaccggtc  
2041 actaacactc ttatgtcctg gctttctgtc ccgctgagc ttctctcac ccgccgtttt  
2101 tctctcctgc ttcatcgct gctgcctaa ccttggccct tctctcggc agaggcaggt  
2161 gctgtggcag cacctctccc caccaccggg ccctgcagg ccgcctccct cctcccaggc  
2221 ctgctaacc tctctcttct ccttctttgc tgtcctgcg gggatctcca gtgtgtgcg  
2281 gggttaagg acctcctgag gaccgtgct ctctgcctct ccaggaatgg cctgggggga  
2341 gccaggcaac cggcaacctc acctgcctaa cctgtggccc atctgccacc atctgtgcct  
2401 acagggtctg cccccagcc tgcccggcct gtgtgctctc taggacccca tagggggcag  
2461 gggctggcct ctttgcccc tctccgctcc atgccggcca gagtgtagaa agccataacg  
2521 cagcagcca tcagcacaat aatgtgactc tacgtgata tgcctcctct ctctccact  
2581 gacttcccc tcccgattt gtgaggtgtc aagactagga atctggcctt agagcctgcc  
2641 cctccacccc ctcagatcag gcatagccat agtcaagccc agcagggttc ctcaggagct  
2701 gtctggggtg ttgatggtg atgacgtgc tgaacaaagt tggtagctgt tctaagcaca  
2761 actggcttga tactgtccc acggcctgtc cactccccc ccccaacct ccaccagagt  
2821 aggtaggatg tagggaggt gcgtgccgc tttgctctag gactgaggg accaagctag  
2881 ccgtgcacag cccatacac ttcaggggag taaaggaaa agctgagcca agaaaaatca  
2941 gctgagccca gggctggggg ctgcttgtct gctatcctgt acctttttt ttttaacca  
3001 aataaaagat tcccctcttc ttgccatacc attggctgtc tggtagcgc ttactttgg  
3061 gcccaggga tggacctgc agtgggcgtg tggacatat ggctcccc cgtcccagc  
3121 ttcttccag ctggccagt ctgctctgga gatttacaag cacaacgaag ccaggagga  
3181 cacaggaaaa gtggctgaca tcttttcc tctgcccc cagaactctt ggtctcaatt  
3241 ccagacacca ccagcctta gctgacctct ggattctgat aggtcccagt gcaggctgag  
3301 acagaggggt taactccagt ttgggactgc catacccatg aactgagccc agcccagggt  
3361 aacgatctca tggaaacttc tctctcccca gttgctgcac tacatcaaga tacacacatg  
3421 tgcatacact gtactatggg ctaaaaaaat acgtaccgct accgttcagc aagggttgc

FIGURE 6B

3481 cgagtcgccg gccattttc tcattctaac ctgtgaggag gatgatgtca gcctttttac  
3541 agatgaggga actgagactc aggaagaaa caggagctgc ccaaggtcac ccagctggca  
3601 agcagcaaaa tccagatcg gaacctgac tctgccccga gctctgagcc atctgcacta  
3661 cccaaggaat gaatacagcg gtgggaggat gagatcttgg agaaacccta aaattagaga  
3721 atgtcatagc cagtagaggg cttagagttg atctgggcca gcctccttgt ttactgatg  
3781 gagaaattga agcccagagg caggaaaggga cctgcccag gccttataac agagctggga  
3841 tgcagtccca cactctgacc tcattccatt ctctctccat aaattctgca ctgtctctag  
3901 actggactgg tttagatgtg ggatactcta aacagcagtg cttcaagag aaaaagaatc  
3961 agaactacga atcacttaa agtaatgtaa gctactctgg gcacactgcc tatggggtcg  
4021 ccctgctcca caaggagcca caaaaataat taaaataatt taataatcct tccaaaggt  
4081 aaccagtaaa gtaagctctt ggctaggtaa ctggactctt gttcacaaact agccagtggg  
4141 aaaagggtgct agagcttctt ctggccacct gtttaatttg atcattccaa gacagaaaca  
4201 ttcttagga agttctttct agaactacc tgggtgccct ccactgcta tcagagccct  
4261 gtccctctgc ctcagtggag gtagagagca aatggttgct gctttcttca tcacaacct  
4321 tcaagccta ttattaccag ctaagaagga ttggttgact atgggccaga gccctgagc  
4381 ctgctggtag aatggatgct gtacaggagg gtggggagg agcaggcaga atgaggaaaag  
4441 cccctttgag ctgcaacccc agtccctgtc ctgctgactc agacagctga ctgtggagct  
4501 ccatgccctg ccagggccctg ctgccctcctg cccgtctgag ctccctgaact tgggaaatgg  
4561 aggccccagag gcaaggagg gtacctgaga caggaaactga gtcaggatca acaggccaga  
4621 gcgggcagga ggtatcaggc agctggctc ccagatgcac cctgagctc cagcagggga  
4681 ggagtaggaa tgaaggggct tccttgccct tgctcatggc tatgaggagg gcgtgaacca  
4741 ccaccaggtc ctctggccta agtggcgga agcaaatggt ccctccctgg actcaggctc  
4801 caaagtctct ggccctgct tccaggctcc cagtgtcctg ggatectccag ctttcccag  
4861 gacttgggga agccccggct ggatgactag tacaatatga gggccctgag gtcccaggac  
4921 ctgctgaggt cacaggaata tcctagatca agcttgtcca accacggcc cacaggctgc  
4981 atgtggccca gaatggcttt gaatgcagcc caacacaaat tagtaaacct tcttaaaaca  
5041 ttatgagatt tttttgcaaa ttttttttt ttttttagct catcagttat tggtagtgtt  
5101 ggtatatatt atgtgtggcc caagacaatt ctccaatgt gggccaggga agccaaaaga  
5161 ttggacacgc ctgtcctaga tggagaggaa ggaggcagtg ctgagcacat ctggccattc

FIGURE 6C

5221 atccatctgg agagagaagg ctatgggcaa actgcttctt ctcccctgta gacaccagc  
5281 tgggaaggct tggcctttgg taagtccctg cttggggctc ttcctcattt cacagaacct  
5341 aactctatgt tagtgctttg tgagtatatg ttgatacata taaagttgac gggatttttt  
5401 cacatgataa taatagtgtg catctggccg ggcattgggtg cttatgccta taatttcagc  
5461 actttggaag gctgaggcag gtggatcact tgaggtcagc tgttcgagac cagcctggcc  
5521 aacatggtga aaccacatct ctacttaaaa aaaaaaaa tacaaaaatt agctgggtgt  
5581 ggtggtgcac cttgtaatc ccagctactc gggaggctga ggcaggagaa tcacttgaac  
5641 ccaggagggtg gaggttcag tgagctgaga ttgtgccact acactccagc ctgggtgaca  
5701 agagcgaac tccgtctcaa aaaaaagaa aataataata ataatagttg ccatccattc  
5761 tactgtgctt tccattaaact cgtgtaatcc tcacaagtcc cattttatag ttacaggaac  
5821 tgaggctcac agagcttaaa tcacttggcc aaggccacaa acagctataa gaattacatt  
5881 taggcagctc gattccaaa gattccaaa atactagtct attctgtatc tcatagacaa acaatacata  
5941 ttcacttttt ttgtgttgtt ttgttttgag acggagtctt gctctgtcac ccaggctgga  
6001 gtgcagtggc gccatctcgg ctcaactgcaa cgtccgcctc ccgggttcaa gcgattctcc  
6061 tgcctcagcc tcccgagtag ctgggactac aggcattgtgc cccatgccc ggctaatttt  
6121 ttgtattttt agtagagaca gggttttcct gggttagcca gaatggctc gatctcctga  
6181 ccttgtgatc caccacctc agcctcccaa agtgcctgaga tgacaggcgt gagccaccgc  
6241 gtccgacctt tattcactat ttataaattg gagagaataa gaaaatcaaa agggccaggt  
6301 gtagtactc acacctgtaa tcccagcact ttgggaagcc aaggcaggag gattgcttga  
6361 accagaagt tcgagaccag cctgggcaac atggtgagac cctgtctcta caaaaaatac  
6421 aaaaattagc tgggcgttgt ggtgagcacc ttattcttag gaagctgagg caggaggatc  
6481 acctgaggcc aaggagggtg agactgcagt gagctgtgat cataccactg tacttcagcc  
6541 tggacatcag agtaagacc tatctctaaa aaggaaaattg agaagaaaaga aaatcaaaag  
6601 gaagcaaaat cactcactct cactacctca agataccctc tagaagttgg tattttagt  
6661 tggttcctat tgttttctgt gtcagttctc tgatttgagc aaaatctttg ggacgtcaaa  
6721 cttaaaatcc cctttacttc cttggaaacc ctgtagcatt agccagaca tgtccctact  
6781 cctccttgtg gcaaagagaa ggtctcgtc ttgtgtccc agagtctctg cctaagcctc  
6841 cctccaggag ggaagatgag tgttcagaca ctgagtag ctgggggaga cacaggcctg  
6901 tgaattatc ctggctcaac tattaggctg gcagaatccc agtgaaggga gccctacctc  
6961 tgagcccat ctaagcttg gctatgggtg ggcagataa gcaggaatcc atccctatag

**FIGURE 6D**

7021 gctcaatgcc aacaccctta ggtgaaactc ttgatgaaac ttgaggccag ggtccggca  
7081 agcagggaag aacaggttgc tccatctctg aggactctgc caggggtcag  
7141 agatggggca atggtcaaaa ggaagggaac ggcaggcac agtggctcat gccataatc  
7201 ccagcacttt gggaggctga ggcaggagga tcgcttgagc ccaggagttt gagacctgcc  
7261 tgggcaatgt agtgagatct gctctctatt taaaaaaa aaaaaggaaa gaacaagtaa  
7321 acttctgaga aacaggttgg gggaggcatc acgtagctgg aattgctgcc ccataaaaca  
7381 gaatggtatg tgtaactgcc acctcccttt ctcaagtctc tctctccca ggttgctagc  
7441 gtccccctgg gggatcaaac tggactgctt ccagcctca gacagagagc agtctgagtc  
7501 aggcaggaaa gtgggacagc cggggagctg gacccaccc tctgtgagcc ccgctggtac  
7561 ctgatggcat gtggcttga gagggcaggt gacctggcgt ggagggccag agggtaaatc  
7621 ctcaaacaaag tggcaacagg ccaccaactt gaaagggaaa attgttagt gatgggaaat  
7681 gtgtccaaca aacctactgg gtgactaatt acaaaggctg ggctggagct tcagaggctg  
7741 cttgttaaac acttcattaa gcggcactct gaaagctgcc acctgcgcac tctgggagct  
7801 cagaggggac cctgaggggg aatgaggcct ggaggatga accatctca ggtagactga  
7861 gaaggagcct ggaatctact tccaaacaca gtctggagct cataggtcag aggcctcaat  
7921 gggagaaaag ctaaaaggaag aggtgacaga aaggagtctt agggaattgg tggctatgtg  
7981 actttgagca aatctcacc ctctctgaga cttagtgttc ccatctctat ggtcctgtgt  
8041 gtgtcacaga gacatggtgg gattataatt cgatcgtgat atgaaagtgc ttgggaaact  
8101 ccatggccct acctaaacat gattatcct cactgaacc aaggggggaa gttacctggc  
8161 aggattagga acctatcct cctgaacctt tatgggctct gtcgaggctg aagcagccag  
8221 gggctaaagc cagtccttag cccctgggaag ggcactgtga aagtggatct gatttgagaa  
8281 gccgtttcct gatgtgggca gccatgtgat gccagccccg acaagagagg ggcagcctgg  
8341 agcctggaaa ggtgccagt gagggtgggc ccagccccag atttctctg ctgactgttc  
8401 tgatgattca ccccacatc ccagcctttt tacctttact gcagagccgg aaagggtgtg  
8461 gggaaagagag gagagggagg caggtcttgg gccctgggtcc cgccccctgc tctccccac  
8521 ccttctctgg gcctggccac ccagccaaaa ggcaggccaa gagcaggaga gacacagagt  
8581 ccggcattgg tccaggcag cagttagccc gccgccccgc tgtgtgtccc cagagccatg  
8641 gagagagcca gtctgatcca gaaggccaaag ctggcagagc aggccgaacg ctatgaggac  
8701 atggcagcct tcatgaaagg cgccgtggag aaggcgagg agctctctg cgaagagcga

**FIGURE 6E**

8761 aacctgctct cagtagccta taagaacgtg gtggcgccgc agaggctgc ctggagggtg  
8821 ctgtccagta ttgagcagaa aagcaacgag gagggctcgg aggagaagg gcccagggtg  
8881 cgtgagtacc gggagaaggt ggagactgag ctccaggcg tgcgacac cgtgctgggc  
8941 ctgctggaca gccacctcat caaggaggcc ggggacgccc agagccgggt ctctacctg  
9001 aagatgaagg gtgactacta ccgctacctg gccgaggtg ccaccggtga cgacaagaag  
9061 cgcatacttg actcagccc gtcagcctac caggaggcca tggacatcag caagaaggag  
9121 atgccgccca ccaaccccat ccgctgggc ctggccctga actttccgt ctccactac  
9181 gagatcgcca acagccccga ggaggccatc tctctggcca agaccactt cgacgaggcc  
9241 atggctgac tgcacacct cagcaggac tctacaaag acagcacct catcatgcag  
9301 ctgctgcgag acaacctgac actgtggac gccgacaacg ccggggaaga gggggcgag  
9361 gctccccagg agccccagag ctgagtgttg ccgccaccg cccgccctg cccctccag  
9421 tccccacc ccgagagg actagtatgg ggtgggagg ccacccttc tccctaggc  
9481 gctgttcttg ctccaaagg ctccgtggag agggactggc agagctgag ccacctggg  
9541 ctggggatcc cactctctt gcagctgttg agccacctc accactgtc atgccccac  
9601 ccctgctctc cgcacccgt tctcccgac ccaggacca ggctacttct cccctcctc  
9661 tgctccctc tgctctgtg aggggctgga gatgggtgtg tgtgtgtgtg cgccttgtg  
9721 gctgagaact ggacagtggc cgcgccagt caagaccgag actgaggga agcatgtctg ctgggtgtga  
9781 tgtgtgcgcg cgtccctgt gacactcctc ctgtctctc tccagtctc  
9841 ccatgtttcc tctcaataaa gttccctgt gacttagaga cctgacttt ggacctctga  
9901 gccgatgggc tgggagtggg actggaatct gacttagaga cctgacttt ggacctctga  
9961 gtagggccc tgaactcct aggtggctca gtggcccgca cgaaagactt ttagtccagg  
10021 tgaggccggg gtcc

FIGURE 6F

H.sapiens Wilms tumor (WT1) gene promoter.

ACCESSION No. X74840

```

1 agcttgccgc ccagccccg gccagccagg tacaggaggc cggactgcaa ccggttgctt
61 ccctcccgtc gcgcctggcc gtcccacgct gcgcgctcgc tgctgcctcc tggcgcccct
121 gggattttat acgcacctct gaaacacgct ccgctccggc ccccggttct tctccttgcc
181 taggggttgt ttcccaatag atactgactc cttagaaga tccaaaaacc aaacaaaaac
241 acccctacc cgcccaaac acctgctctg gggcgcgggg gctgccaac agagactaga
301 cgaaggaggc cagatttagc gaantcttcg agtcccaaa gattcgaaca ctaactcgcg
361 ccgtgggcc gatggaggtt ctccctactc cactccttgg tcccttaac tggcttcgcg
421 ctctgtgtca atcactgagc aaccagaatg gtatcctcga ccagggccac aggcagtgct
481 cggcggagtg gctccaggag ttaccgcctc ctgccgggct tcgtatccaa accctcccct
541 tcacctctcc tcccctccct caagggtttt gggcgccagg atgctccggc cggaatatat gcaggctttg
601 ggcgtttgcc caagggtttt ctccctcctt aaactagccg ctgttttccc ggcttaaccg
661 tagaagaatt agatatctct cactggaaag ggaactaag tgctgctgac tccaatttta
721 ggtagggcgc aaccgcttcc gcctggcgca aacctcacca agtaaacaa tactagccga
781 tcgaaatacg cccggcttat aactggtgca actccggcc acccaactga gggacgttcg
841 ctttcagtcg cgacctctgg aaccacaaa gggccacctc ttccccagt gacccaaga
901 tcatggccac tcccctaccc gacagtctta gaagcaagag ccagactcaa ggtgcaaaag
961 caagggtata cgcttctttg agcttgact gagttctttc tgcgctttcc tgaagtcccc
1021 gccctcttgg agcctacctg ccctccctc caaacactc tttagatta acaaccccat
1081 ctctactccc accgcatctg accctgcccg gactcactgc ttacctgaac ggactctcca
1141 gtgagacgag gctccacac tggcgaaggc caagaagggg aggtggggg agggttgtgc
1201 cacaccggcc agctgagagc gcgtgttggg ttgaagagga ggtgtctcc gagagggacg
1261 ctccctcgga ccgcccctca cccagctgc gagggcgccc ccaaggagca gcgcgcgctg
1321 cctggccggg cttgggctgc tgagtgaatg gagcggccga gcctcctggc tcctcctctt
1381 ccccgccg ccggccctc ttatttgagc ttggggaagc tgagggcagc caggcagctg

```

FIGURE 7A

1441 gggttaaggag ttcaaggcag gcccacacc cggggggtctt ccgcaacccg accgcctgtc  
1501 cgctccccc ctcccgccc tccctccac ctactcattc accacccac ccaccagag  
1561 cgggacggc agccaggcg cccgggccc gccgtctcct cgcgcgac ctggacttcc  
1621 tcttgctgca ggaccggct tccacgtgtg tccggagcc gggtctcag cacacgctcc  
1681 gctccgggc tgggtgccta cagagccag agcagcaggg agtccgggac ccgggcggca  
1741 tctgggcca gtaggcgc gccaggcca gcgctgaacg tctccaggc cggaggagcc  
1801 gcggggcgtc cgggtctgag cctcagcaa tgggtccga cgtgcgggac ctgaacgcgc  
1861 tgctgccgc cgtccctcc ctgggtggcg gcggcggtg tgccctgcct gtgagcggcg  
1921 cggcgagtg ggcccggtg ctggactttg cggcccggtg cgcttcggt tacgggtcgt  
1981 tgggcggcc cggccgcca cggctccgc gccacccc gccgcggcg cctcactcct  
2041 tcatcaaca ggagccgagc tggggcggcg cggagccgca cggaggagc tgcctgagcg  
2101 ccttcactgt cactttcc gccagttca ctggcacagc cggagcctgt cgctacgggc  
2161 ccttcggtcc tctccgccc agccaggcgt catccggcca ggcaggatg ttccctaacg  
2221 gccctacct gccagctgc ctcgagagc agcccgctat tcgcaatcag ggtaagtagg  
2281 ccggggagcg cccta

**FIGURE 7B**

Estrogen Receptor (ER): Homo sapiens estrogen receptor beta gene, promoter region and partial cds  
Accession Number AF191544

1 actatagggc a**CGCG**tggt**C** Ga**CGG**cc**CGG** gctggtattg atagatgcat tttcttcacc  
61 ctcacctatc tttttctgcc tgttggtcta tggttgaaat tccttcata **CG**gtttccat  
121 ttccagagat atcttggttaa caagtatata ccacaaatg aagctgattt tttttttttt  
181 ttttttttga gacagagtct **CG**ctctgt**CG** ccaggctgg aatgcagtgg **CGCG**atcttg  
241 gctcaactga acctc**CG**cct cccatgttca ag**CG**attctc ctgcctcagc ctctgagta  
301 gctgggatta ctggcatgtg ccac**CGCG**tc cagccaattt ttgtattttt agtagaga**CG**  
361 aggtttcacc atgttggtca gctggtctc aaactcctga cct**CG**tgatc cacctgcctc  
421 ggcctcccaa agtgctgaga ttataggtgt gagccacct gagtggtccat gaagctgatt  
481 tttttaaac atcatttaac atttctcca taagtggca aggaggaaga gcataatgggg  
541 actgggtact ttgagagacc ccaggacagg agacaggag gctgagattg gcatgtgtgc  
601 tgctgcagtt atttgccag**C** Gacacactct ttc**CG**tcctca actaactct ctgcctcaag  
661 gacagggaga ctctgccttt caacctgaga gaaaccagg cctcagctt taatgaaaat  
721 tggacttagg gtggggcagt ggagactttt cacagctatt gtttagctga tgaagcagat  
781 gcttctccat ctttgagcc tgtcttcatt acctgtggac ctcatcttta tcaaccaga  
841 gcacacttg**C** Gtctctctat ttgggtctaa caccacacag ctgaggctgg tactgtataa  
901 ctttccctcc aaatgcccc cct**CG**ctcttc ctctattaga gatctggatc aacacctca  
961 aaaaccatgt cccttatgcc acctgagtag atggtttgat gattaattag gcacagatgt  
1021 gacactggg ggtctcaca atggcctgtg ggtcacatgc tacttctct ttcattttca  
1081 tcagcaacag ctgccttaa gccagttaag actgtggtcc tagtct**CG**ca cctgggggct  
1141 cctgctggg tgggtgagg gaaacaccca ttaagctggg ggaactggg ctgccaccag  
1201 gggg**CGCG**ag gggcctt**CG**c **CG**gagaag ggtggggcag gtgcctccag **CG**gagaaggg  
1261 **CGCG**tggg**CG** Ggaggcacag gtctccc**CG**g tgccacttca agtgagtt**CG** aggaagtacc  
1321 tgggatctt gatctaa**CGC** Gaaaggcctt cccagtgacc tcttgagggc tgagaacca  
1381 ctccctccac ctctagtcca **CG**gctttgcc actccaggc c**CG**aggtta**C** Gtttgctgct  
1441 ggggatttga caaacccaaa gcctctctgg ttccaccact ggtccttag aatcagacat  
1501 ctgttctgaa tgacacttat gtgagtcagg ggctgaggac**C** Gtgatect**CG** aagtgtggtc  
1561 ccagactgg ctgtatcagt gt**CG**gcatcc cccaggacct ggttggaat gcataatctc  
1621 agccctact ccagacctct taaatctgag actggggctg **CG**gggag**CG**c catctgtg**CG**

FIGURE 8A

1681 ccactatcct tgtgggtgga ccaggagtCG gttCGagggt gctcccactt agaggtcaCG  
 1741 CGCGCGtCG CGCGtCGtCG agacCGtCG gctccctggc tCGgtcaCGt gggctcaggc  
 1801 actactccc tctaccctc tctCGgtctt taaaaggag aaggggctta tCGttaagtC  
 1861 Gcttgatgc ttttcagttt ctccagctgc tggctttttg gacacccact ccccCGccag  
 1921 gaggcagttg caagCGCGga ggttgCGaga aataactgcc tcttgaaact tgcaggggCGa  
 1981 agcgcacCG CGCGtCGtg ggcCGgggag ggaccaccCG agcttgCGacg ggtctcgggg  
 2041 ctgCGgggca gggctggCGC CGgagcctg agctgcagga ggtgCGctCG ctttcctcaa  
 2101 caggtggCGG CGgggCGCGC GCGggagac cccccctaat gCGCGtCGtCG  
 2161 Gattttagag aaggcaaggc CGgtgtgttt atctgcaagc cattatactt gcccCGaat  
 2221 ctttgagaac attataatga ctttgtgccc tttcttgca aggtgttttc tcagctgtta  
 2281 tctcaagac gatataaa aaactcacca tctagcctta attctccttc ctctacaac  
 2341 tgcagtcaat ccatcttacc cctggagcaC Ggtccatat acataccttc ctctatgta  
 2401 gacagccacc atgaatatcc agccatgaca ttctatagcc ctgctgtgat gaattacagc  
 2461 attcccagca atgtcactaa ctggaaagg tgggccc

FIGURE 8B

Unmethylated 288 BP

G ggtgTGTtctttg agatTGTGTG FUM 21 BP AT 60

TG agttgTGaTG ggttttgg

ccgaaacc CATCAcaact CA RUM 20 BP AT 58

Methylated 181 BP

ccgttccCG CGCGCG FM 18 BP AT 60

CGggaaaag taCGtggttCG t

CGaacaCGtctttccCG RM 20 BP AT 60

FIGURE 8C